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## **PM<sub>2.5</sub> QUALITATIVE ASSESSMENT**

### **SR-57 NORTHBOUND WIDENING IMPROVEMENTS**

EA: 0F0300

12-ORA-57KP 26.0 / 21.0 (PM 16.4 / 21.1)

Cities of Placentia, Fullerton, and Brea  
County of Orange, State of California

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September 11, 2006

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## APPENDIX

- Appendix A - TCWG Interagency Consultation Form
- Appendix B - Air Quality Monitoring Sheets

## **1.0 INTRODUCTION**

### **1.1 PURPOSE OF PM<sub>2.5</sub> HOTSPOT ANALYSES**

#### **GENERAL CONFORMITY RULE**

The U.S. Environmental Protection Agency (EPA), in conjunction with the U.S. Department of Transportation (DOT), established the General Conformity Rule, as defined in 40 CFR Part 52, on November 30, 1993. The rule implements the Federal Clean Air Act (FCAA) conformity provision, which mandates that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved FCAA implementation plan. The General Conformity Rule applies to all federal actions except programs and projects requiring funding or approval from the DOT, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), or the Metropolitan Planning Organization (MPO). These types of programs and projects must instead comply with the conformity provisions implemented in the Transportation Conformity Rule issued by the DOT.

Nonattainment areas are subject to a measure known as "transportation conformity," which requires local transportation and air quality officials to coordinate planning to ensure that transportation projects, such as road construction, do not affect an area's ability to reach its clean air goals. Transportation conformity requirements become effective one year after an area is designated as non-attainment.

#### **TRANSPORTATION CONFORMITY FOR PM<sub>2.5</sub> STANDARDS**

On January 5, 2005, the EPA designated the South Coast Air Basin (SCAB) as a nonattainment area for particulate matter less than 2.5 micrograms (PM<sub>2.5</sub>). This designation became effective on April 5, 2005, 90 days after the EPA's published action in the Federal Register. Transportation conformity for the PM<sub>2.5</sub> standards applies on April 5, 2006, after the one-year grace period provided by the FCAA. By April 15, 2006, metropolitan PM<sub>2.5</sub> nonattainment areas must have in place a transportation plan and transportation improvement program that conforms and federally supported projects must also be shown to conform after the end of that grace period. For PM<sub>2.5</sub>, project-level conformity also requires an assessment of localized emissions impacts for certain projects.

A qualitative hot-spot analysis is defined in 40 CFR 93.101 as an estimation of likely future localized pollutant concentrations resulting from a new transportation project and a comparison of those concentrations to the relevant air quality standard. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, including, for example, congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets FCAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

The EPA again published a final rule on March 10, 2006 (became effective as of April 5, 2006) and established conformity criteria and procedures for transportation projects to determine their impacts on ambient PM<sub>2.5</sub> levels in nonattainment and maintenance areas. The March 10, 2006 final rule requires a qualitative PM<sub>2.5</sub> hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule defines a POAQC in relation to PM<sub>2.5</sub>:

- (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

- (ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- (v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM<sub>2.5</sub> and PM<sub>10</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

In order to implement the hot-spot analysis requirements of the March 10, 2006 final rule, the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas* (Guidelines) was developed by the EPA and FHWA. The Guidelines were utilized to perform this PM<sub>2.5</sub> Qualitative Assessment.

As of March 10, 2006, future qualitative PM<sub>2.5</sub> and PM<sub>10</sub> hot-spot analyses should be based on the Guidelines, which supersede FHWA's existing September 12, 2001, *Guidance for Qualitative Project-Level "Hot Spot" Analysis in PM<sub>10</sub> Nonattainment and Maintenance Areas*. However, any PM<sub>10</sub> hot-spot analysis that was started prior to the release of the EPA and FHWA's new Guidelines may be completed with the previous 2001 guidance. In addition to the 2001 guidance document, Caltrans and the FHWA along with the University of California Davis prepared the *Particulate Matter and Transportation Projects, An Analysis Protocol* (Protocol) (dated February 23, 2005). A previous Air Quality Report (dated April 7, 2006) was prepared for the SR-57 Project, which was approved by the California Department of Transportation (Caltrans). The previous report incorporated the methodology provided by the Protocol. Based on the Protocol, the proposed project was found not to result in a PM<sub>10</sub> hot-spot. Therefore, since analysis was initiated prior to the March 10, 2006 ruling and the project would not result in a PM<sub>10</sub> hot-spot per the Protocol, PM<sub>10</sub> was not included in this analysis.

The proposed project was discussed among stakeholders at a Transportation Conformity Working Group (TCWG) meeting on June 27, 2006, pursuant to the interagency consultation requirement of 40 CFR 93.105 (c)(1)(i) as an important tool to collectively evaluate this project; refer to Appendix A (TCWG Interagency Consultation Form). This document provides the second step of analyzing PM<sub>2.5</sub> air quality impacts. In conjunction with this analysis, an Initial Study/Environmental Assessment (IS/EA) is being performed. Pending concurrence by the TCWG and approval by the FHWA, public comments on the PM<sub>2.5</sub> qualitative hot-spot analysis will be solicited during the public review period for the IS/EA.

## 2.0 PROJECT DESCRIPTION

### PROJECT LOCATION

The project study area is located along the northbound travel lane of SR-57, within the Cities of Placentia, Fullerton, and Brea, Orange County, State of California (7.5 Minute Quadrangle Map of La Habra, 1964, photorevised 1981, T3S, R10W); refer to Exhibit 1 (Regional Vicinity). The project study area extends for 9.6 kilometers (6.0 miles) from approximately 0.3 kilometers (0.2 miles) south of Orangethorpe Avenue in the City of Placentia to 0.2 kilometers (0.1 miles) north of Lambert Road in the City of Brea; refer to Exhibit 2A (Southern Project Study Area) and Exhibit 2B (Northern Project Study Area).

SR-57 is currently a north/south freeway and is designated for regional transportation uses. Currently, SR-57 ranges from four (4) to six (6) mixed-flow lanes and one (1) high occupancy vehicle (HOV) lane in each direction with paved shoulders on each side for emergency parking. Surrounding land uses consist of residential, park, agricultural, institutional, commercial, and light industrial land uses.

### PROJECT CHARACTERISTICS

The Orange County Transportation Authority (OCTA) proposes to construct improvements to widen northbound State Route 57 (the Orange Freeway) from 0.3 km (0.2 mi) south of Orangethorpe Avenue in the City of Placentia to 0.2 km (0.1 mi) north of Lambert Road in the City of Brea. This project has a length of 7.6 km (4.7 mi), and passes through the Cities of Placentia, Fullerton and Brea, in Orange County, California; refer to Exhibits 3A through 3D (Project Study Area).

In general, the SR-57 Northbound Widening Improvements propose to add one northbound through lane from the Orangethorpe Avenue Exit Ramp to the Lambert Avenue Entrance Ramp. Details of the proposed improvements are as follows:

1. Orangethorpe Avenue Exit Ramp to Orangethorpe Avenue Entrance Ramp: The existing facility provides (1) HOV lane and (5) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (6) mixed-flow lanes.
2. Orangethorpe Avenue Entrance Ramp to Chapman Avenue Exit Ramp: The existing facility provides (1) HOV lane, (4) mixed-flow lanes, and (1) auxiliary lane. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes, (1) auxiliary lane and a two-lane exit ramp to Chapman Avenue.
3. Chapman Avenue Exit Ramp to Nutwood Avenue Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
4. Nutwood Avenue Entrance Ramp to Yorba Linda Boulevard Exit Ramp: The existing facility provides (1) HOV lane, (4) mixed-flow lanes and (1) auxiliary lane. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes and (1) auxiliary lane.
5. Yorba Linda Boulevard Exit Ramp to Yorba Linda Boulevard North Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.

6. Yorba Linda Boulevard North Entrance Ramp to Rolling Hills Drive: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
7. Rolling Hills Drive to Imperial Highway Exit Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane, (1) auxiliary lane and the Imperial Hwy exit ramp will be reconfigured from a one-lane exit to a two-lane exit. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes, (1) auxiliary lane and a two-lane exit ramp to Imperial Hwy.
8. Imperial Highway Exit Ramp to Imperial Highway South Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
9. Imperial Highway South Entrance Ramp to Imperial Highway North Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (2) mixed-flow lanes. The proposed facility will provide (1) HOV lane and (6) mixed-flow lanes.
10. Imperial Highway North Entrance Ramp to Lambert Road Exit Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane and (1) auxiliary lane. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes and (1) auxiliary lane.
11. Lambert Road Exit Ramp to Lambert Road Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.

Alternative 1 will generally provide the proposed improvements in accordance with Caltrans Highway Design Manual requirements. Alternative 2 differs from Alternative 1 principally in the following respects:

1. Maintains existing nonstandard median shoulder (generally 0.6 meter in width) north of Orangethorpe Avenue;
2. Maintains existing nonstandard 3.35 meter lane widths;

Both build alternatives require limited amounts of right of way acquisition. Alternative 1 requires approximately 515 m<sup>2</sup> of acquisition at a total of five locations. Alternative 2 requires approximately 24 m<sup>2</sup> of acquisition at one location.

## **PURPOSE AND NEED**

The purpose of the proposed SR-57 Northbound Widening Project, from the Orangethorpe Avenue exit ramp to the Lambert Road entrance ramp, is to improve both existing and future mobility, reduce congestion, improve mainline weaving, merge and diverge movements without substantial acquisition of right of way. The environmental study boundary spans from the SR-91 interchange to north of Lambert Road where traffic generation reduces due to lower population density.

The proposed project is intended to achieve the following goals:

1. Maximize mainline mobility and throughput without acquisition of substantial right of way;

2. Facilitate regional circulation, flow of goods and services via SR-57;
3. Achieve a major component of the OCTA Chokepoint Program; and
4. Conform to state, regional, and local plans and policies.

Existing daily traffic volumes within the project area range from more than 101,000 to 142,000 vehicles per day, with peak hour volumes ranging from 8,300 to nearly 9,900 vehicles in the mixed-flow lanes and over 1,700 vehicles in the HOV lane. Under current traffic conditions, substantial congestion is experienced in the afternoon peak hour period.

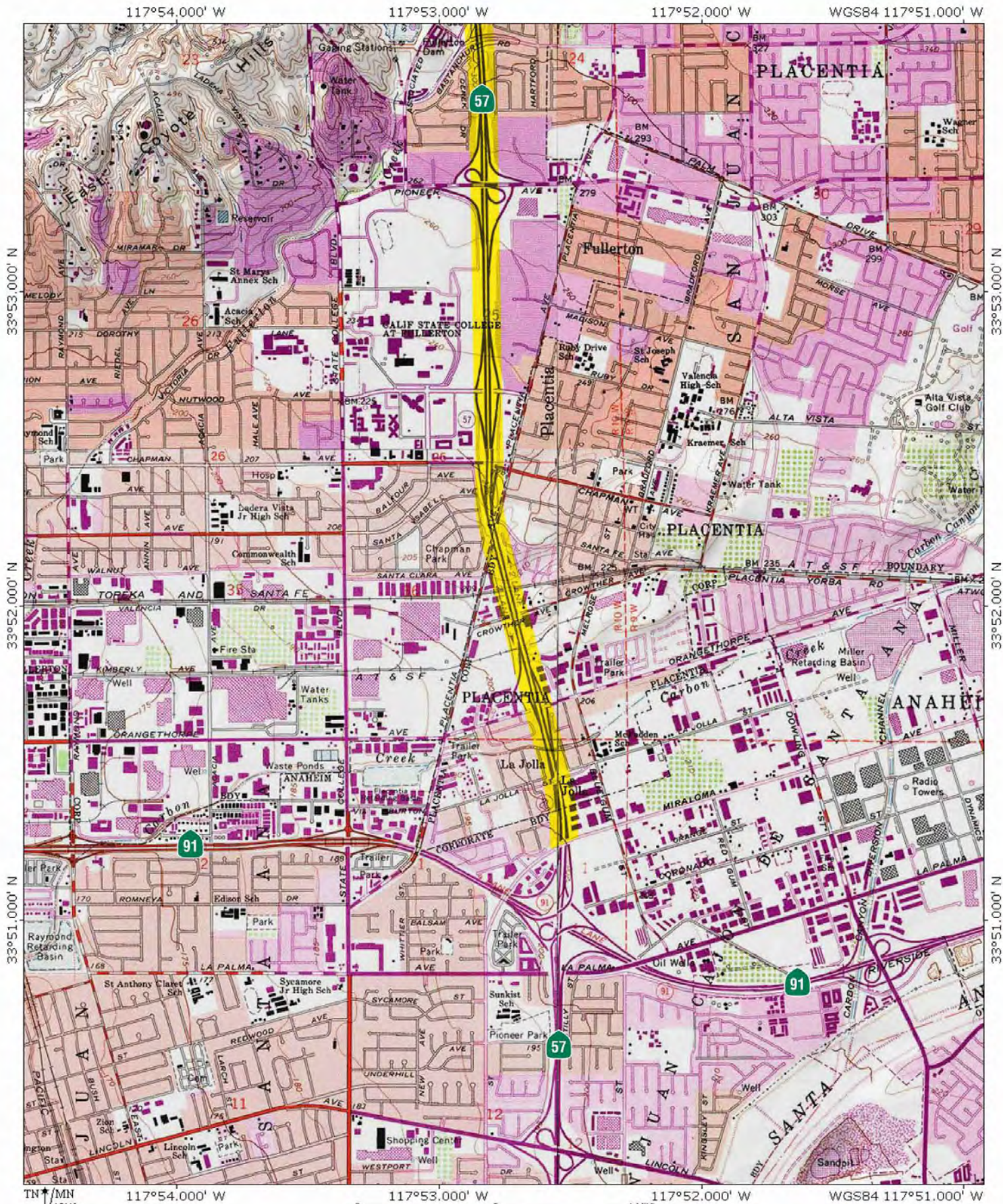
By Year 2030, daily traffic volumes within the project area range from more than 144,000 to 158,000 vehicles per day, with peak hour volumes ranging from 11,700 to nearly 13,600 vehicles in the mixed-flow lanes and 3,000 vehicles in the HOV lane. The forecast northbound peak hour traffic volumes in the HOV lane in the Year 2030 is based on a requirement of at least two persons per vehicle. Without any improvements to the freeway, a failing level of service (LOS F) is expected throughout the project area.

This project is supported by OCTA and Caltrans District 12. It is identified in the freeway chokepoint program and is part of the fast forward initiative being sponsored by OCTA for funding for design and construction. It is proposed as a "Category 4A" project. It is anticipated that a Mitigated Negative Declaration/Finding of No Substantial Impact (MND/FONSI) would satisfy the environmental compliance for CEQA and NEPA. This project is tentatively proposed to be funded by Orange County Measure "M" funds and/or Regional Transportation Improvement Program (RTIP) funds. The PA/ED phase of the project is scheduled for completion in May 2007. This project would serve to implement part of the improvements recommended in the Transportation Concept Report (formerly Route Concept Report for SR-57).

This is considered to be State-Authorized under current the FHWA/Caltrans Stewardship Agreement.







Project Study Area

SR-57 NORTHBOUND WIDENING PROJECT  
PM<sub>2.5</sub> QUALITATIVE ANALYSIS

## Southern Project Study Area

Exhibit 2A



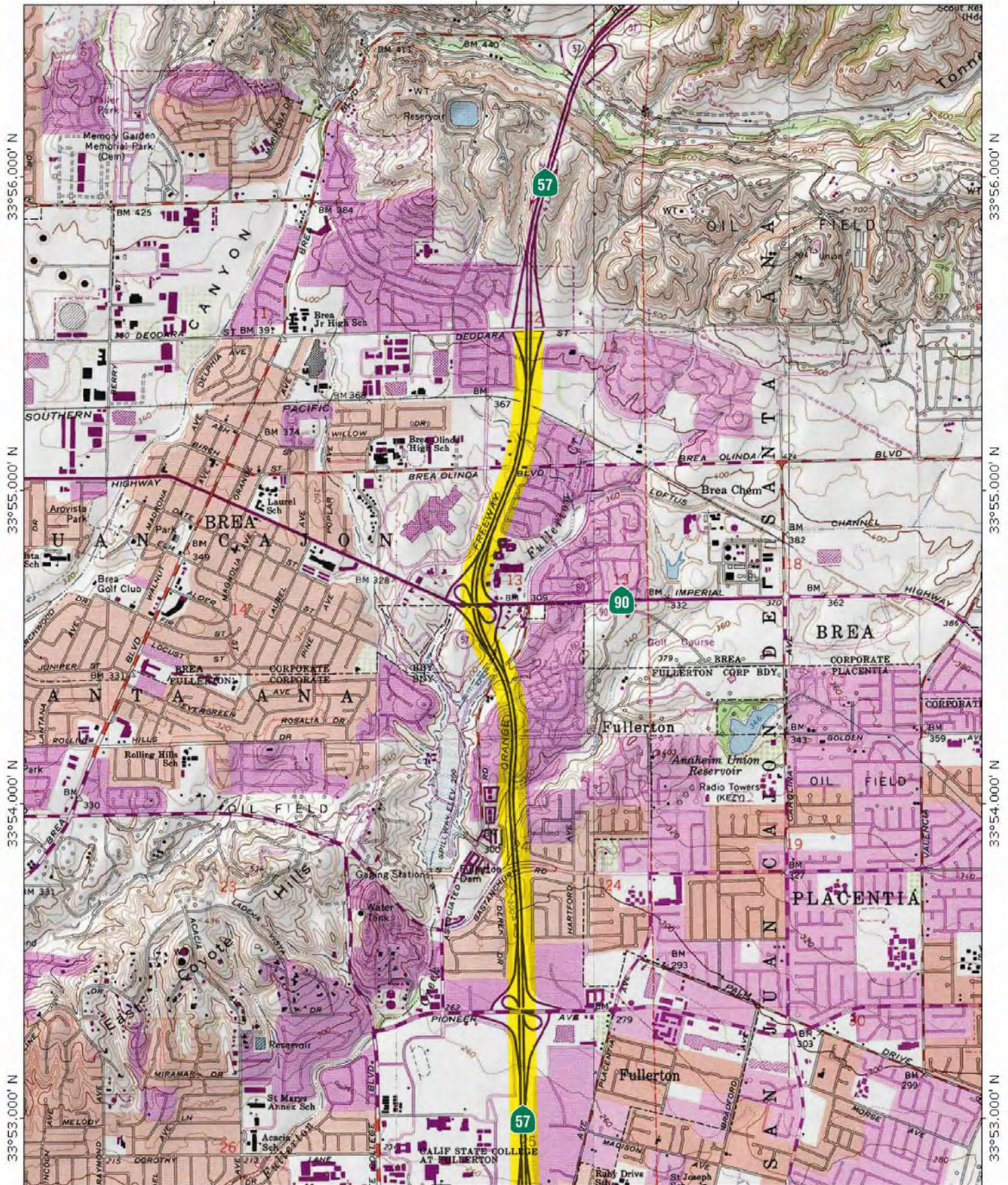
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117°54.000' W

117°53.000' W

WGS84 117°52.000' W


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134°

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117°53.000' W

WGS84 117°52.000' W

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 Project Study Area

SR-57 NORTHBOUND WIDENING PROJECT

PM<sub>2.5</sub> QUALITATIVE ANALYSIS

# Northern Project Study Area

Exhibit 2B

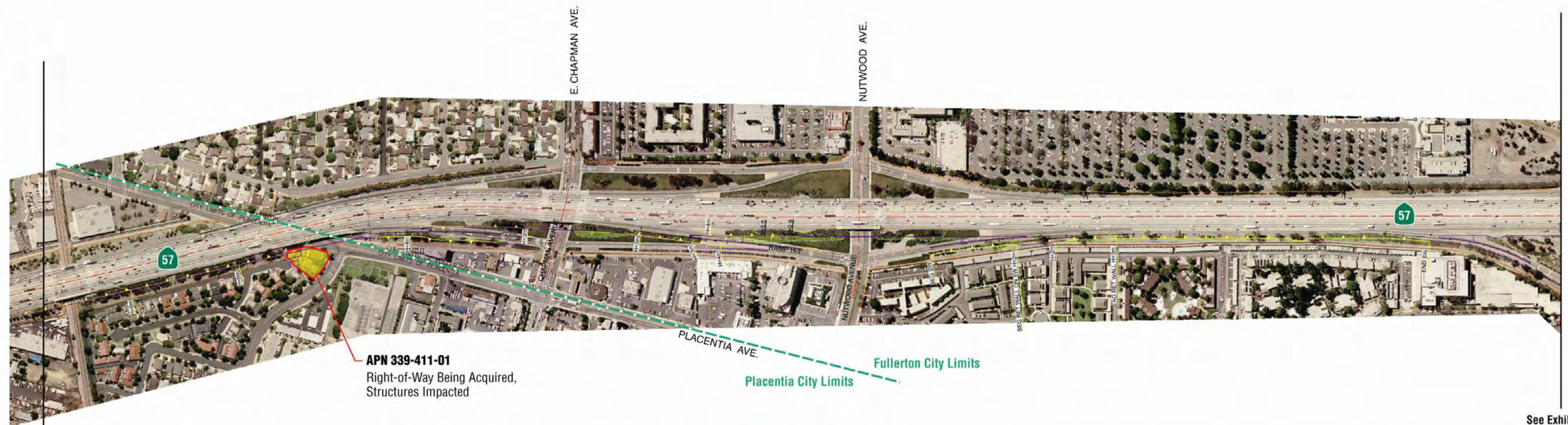


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See Exhibit 3A

See Exhibit 3C



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SR-57 NORTHBOUND WIDENING PROJECT  
PM<sub>2.5</sub> QUALITATIVE ANALYSIS

**Project Study Area**

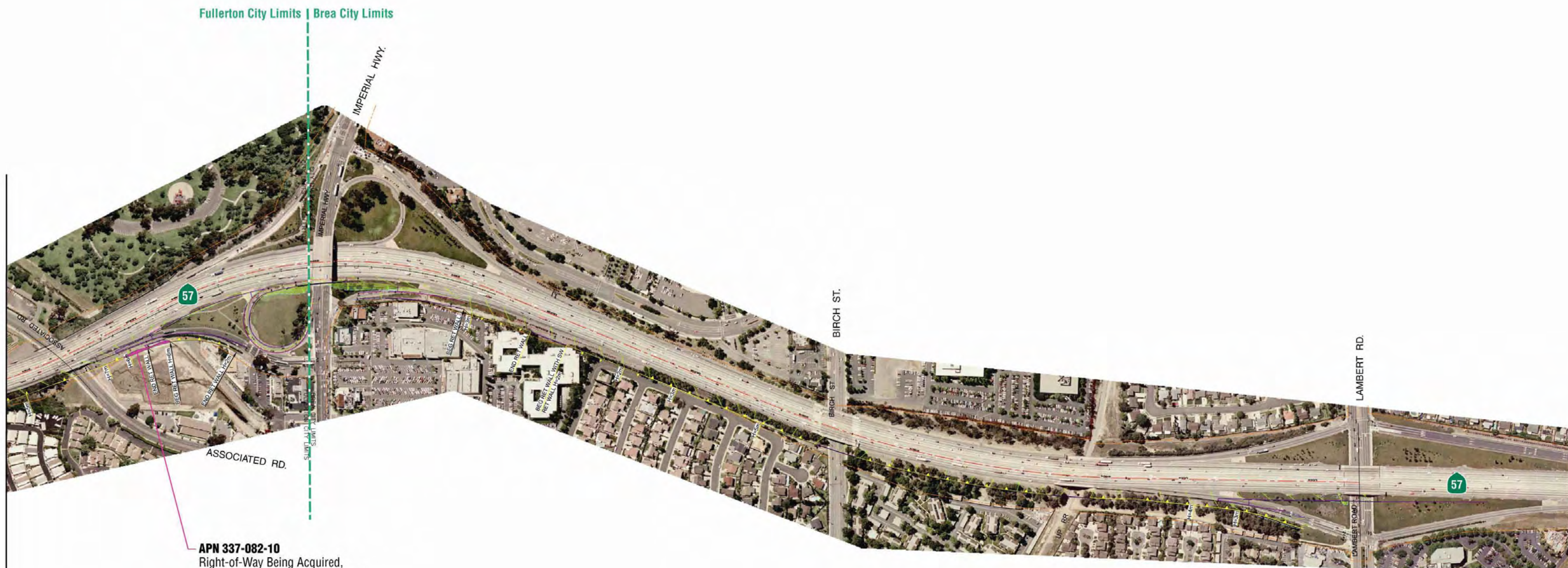
**Exhibit 3B**





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See Exhibit 3C



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SR-57 NORTHBOUND WIDENING PROJECT  
PM<sub>2.5</sub> QUALITATIVE ANALYSIS

**Project Study Area**

Exhibit 3D

## **3.0 ENVIRONMENTAL SETTING**

### **SOUTH COAST AIR BASIN (SCAB)**

The proposed project is located within the South Coast Air Basin (SCAB). The SCAB is characterized as having a “Mediterranean” climate (a semi-arid environment with mild winters, warm summers and moderate rainfall). The SCAB is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties, in addition to the San Geronio Pass area of Riverside County. Its terrain and geographical location determine the distinctive climate of the SCAB, as the SCAB is a coastal plain with connecting broad valleys and low hills.

The general region lies in the semi-permanent, high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area’s natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall and topography all affect the accumulation and/or dispersion of pollutants throughout the SCAB.

### **CLIMATE**

The average annual temperature varies little throughout the SCAB at about 75 degrees Fahrenheit. However, with a less pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have had recorded temperatures over 100 degrees in recent years. January is usually the coldest month at all locations while July and August are usually the hottest months of the year. Although the SCAB has a semi-arid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent; and low stratus clouds, occasionally referred to as “high fog” are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

### **SUNLIGHT**

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain original, or “primary” pollutants (mainly reactive hydrocarbons and oxides of nitrogen) react to form “secondary” pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind from the emission sources. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

### **TEMPERATURE INVERSIONS**

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air would be mixed and dispersed into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and

accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in the southland. The cool, damp and hazy sea air capped by coastal clouds is heavier than the warm, clear air that acts as a lid through which the marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone observed during summer months in the Basin. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The proposed project area in which SR-57 is located offers clear skies and sunshine; however, it is still susceptible to air inversions. This traps a layer of stagnant air near the ground where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces and other sources.

### **PARTICULATE MATTER (PM<sub>2.5</sub>)**

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. PM<sub>2.5</sub> refers to particulate matter that is 2.5 micrograms or smaller in size, which is approximately 1/30 the size of a human hair; so small that several thousand of them could fit on the period at the end of this sentence. The sources of PM<sub>2.5</sub> include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds (all of which are also products of fuel combustion) are transformed in the air by chemical reactions.

Fine particles are of concern because they are risk to both human health and the environment. Because the particles are so small they are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing, and premature deaths. Most of these premature deaths are the elderly whose immune systems are weaker due to age or other health problems such as cardiopulmonary diseases.

Children are more susceptible to the health risks of PM<sub>2.5</sub> because their immune and respiratory systems are still developing. The average adult breaths 13,000 liters of air per day and children breath up to 50 percent more air per pound of body weight than adults. The breathing of fine particles by children is believed to cause both acute and chronic respiratory problems such as asthma. Forty percent of all asthma cases are children who make up only 25 percent of the population.



## 4.0 PM<sub>2.5</sub> QUALITATIVE ANALYSIS

As previously noted, EPA's final rule on PM<sub>2.5</sub> hotspot analysis requires localized assessment for projects of air quality concern (POAQC). Per the Transportation Conformity Working Group (TCWG), the proposed project is a POAQC and would require further analysis. The following section provides analysis of existing PM<sub>2.5</sub> levels and anticipated levels with the implementation of the proposed project. The analysis did not include PM<sub>2.5</sub> emissions during construction because construction activities would not last for longer than three years and would be considered a temporary impacts as defined in 40 CFR 93.123 (c)(4).

### 4.1 PM<sub>2.5</sub> HOT-SPOT ANALYSIS

#### EXISTING PM<sub>2.5</sub> LEVELS

The South Coast Air Quality Management District (SCAQMD) and California Air Resources Board (CARB) operate several air quality monitoring stations within the SCAB; refer to Table 1 (Local PM<sub>2.5</sub> Levels). The closest station that monitors PM<sub>2.5</sub> is located within the City of Anaheim. As indicated in Table 1, the highest recorded 24-hour measurement was 115.5 µg/m<sup>3</sup> in 2003. The highest annual measurement was recorded in 2002 at 18.6 µg/m<sup>3</sup>. Based on the information at the Anaheim monitoring station, the Federal standard was exceeded five times between years 2001 to 2005; refer to Appendix B (Air Quality Monitoring Sheets). However, the federal standard was not exceeded in years 2004 and 2005.

**Table 1**  
**LOCAL PM<sub>2.5</sub> LEVELS<sup>1</sup>**

Pollutant	Primary Standard		Year	Maximum Concentration <sup>1</sup>	Number of Days State/Federal Std. Exceeded
	California	Federal			
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>2,3</sup>	No Separate State 24-hour Standard	65 µg/m <sup>3</sup> for 24 hours	2001	70.8 µg/m <sup>3</sup>	NA/1
			2002	68.6	NA/1
			2003	115.5	NA/3
			2004	58.9	NA/0
			2005	54.7	NA/0
	12 µg/m <sup>3</sup> annual arithmetic mean	15 µg/m <sup>3</sup> annual arithmetic mean	2001	NM	NM/NM
			2002	18.6µg/m <sup>3</sup>	NM/1
			2003	17.3	NM/3
			2004	16.8	NM/0
			2005	16.0	NM/0
ppm = parts per million; µg/m <sup>3</sup> = micrograms per cubic meter; PM <sub>2.5</sub> = particulate matter 2.5 microns in diameter or less; NA = Not Applicable; NM = Not Measured					
Notes: 1. Maximum concentration is measured over the same period as the California Standard. 2. Measurements taken at the Anaheim Monitoring Station located at Pampas Lane, Anaheim, California. 3. PM <sub>2.5</sub> exceedances are derived from the number of samples exceeded, not days.					
Source: California Air Resources Board, <i>ADAM Air Quality Data Statistics</i> , <a href="http://www.arb.ca.gov/adam/welcome.html">http://www.arb.ca.gov/adam/welcome.html</a>					

#### EXISTING TRAFFIC CONDITIONS

As noted within Table 2 (Existing Average Daily Traffic Along State Route 57), the two-way average daily trips (ADT) along the mainline of SR-57 ranges from 209,700 (between Imperial Highway and Lambert Road) to 283,500 (south of Orangethorpe Avenue), with peak hour volumes ranging from 8,300 to nearly 9,900 vehicles in the mixed-flow lanes and over 1,700 vehicles in the HOV lane. Heavy trucks along SR-57 account for 7 percent of the overall volume (note that recreational vehicles are also accounted for in this classification). A 7 percent volume of heavy trucks would result in approximately 14,679 to 19,845 trucks along the

mainline. Currently, the mainline roadways operate at levels of service (LOS) D or E. Table 3 (Existing On- and Off-Ramp LOS) provides the existing LOS at the on- and off-ramps along SR-57. Under current traffic conditions, significant congestion is experienced in the afternoon peak hour period. At the on- and off-ramps, ten are operating at an LOS of D or worse. Only the Orangethorpe Avenue on-ramp and the Chapman Avenue off-ramp operate at an LOS C.

**Table 2**  
**EXISTING AVERAGE DAILY TRAFFIC ALONG STATE ROUTE 57**

Location/Description	Existing ADT	Heavy Truck Percentage	Truck ADT <sup>1</sup>	LOS
Orangethorpe Ave to Chapman Ave	283,500	7%	19,845	E
Chapman Ave to Nutwood Ave	270,900	7%	18,963	E
Nutwood Ave to Yorba Linda Blvd	264,600	7%	18,522	D
Yorba Linda Blvd to Imperial Hwy	236,700	7%	16,569	E
Imperial Hwy to Lambert Rd	209,700	7%	14,679	E

Source: RBF Consulting, *SR-57 Northbound Widening Traffic Impact Analysis*, August 21, 2006.  
 Note:  
 1. Truck ADTs were based on a seven percent truck value, which was provided by Caltrans District 12, May 2006.

**Table 3**  
**EXISTING ON- AND OFF-RAMP LOS**

Ramp	Existing ADT	Heavy Truck Percentage	Truck ADT <sup>1</sup>	LOS
Orangethorpe Ave Off-Ramp	10,760	2%	215	D
Orangethorpe Ave On-Ramp	8,070	2%	161	C
Chapman Ave Off-Ramp	14,310	2%	286	C
Nutwood Ave Off-Ramp	9,780	1%	98	E
Nutwood Ave On-Ramp	10,150	2%	203	E
Yorba Linda Blvd Off-Ramp	16,740	2%	335	D
EB Yorba Linda Blvd On-Ramp	3,320	2%	66	D
WB Yorba Linda Blvd On-Ramp	5,600	2%	112	D
Imperial Hwy Off-Ramp	24,690	5%	494	E
EB Imperial Hwy On-Ramp	6,840	5%	342	D
WB Imperial Hwy On-Ramp	7,220	5%	361	D
Lambert Rd Off-Ramp	18,570	5%	929	E

Source: RBF Consulting, *SR-57 Northbound Widening Traffic Impact Analysis*, August 21, 2006.  
 Note:  
 1. Truck ADTs were based on a seven percent truck value, which was provided by Caltrans District 12, May 2006.

## **FUTURE TRAFFIC CONDITIONS**

As noted within Table 4 (Future Average Daily Traffic Along State Route 57), by Year 2030 the two-way ADT along the mainline of SR-57 ranges from 284,588 (Yorba Linda Boulevard to Imperial Highway) to 314,339 (Orangethorpe Avenue to Chapman Avenue). Heavy trucks along SR-57 account for 7 percent of the overall volume (note that recreational vehicles are also accounted for in this classification). Heavy truck trips would range from 19,921 to 22,003 trips. The forecast northbound peak hour traffic volumes in the HOV lane in the Year 2030 is based on a requirement of at least two persons per vehicle. Without any improvements to the freeway, a failing level of service (LOS F) is expected throughout the project area.

In addition to LOS levels along the mainline of SR-57, Table 5 (Future On- and Off-Ramp LOS) is also provided for the on- and off-ramps. As shown in Table 5, without implementation of the proposed project, the surrounding ramps would result in a deficient LOS E, except for the Orangethorpe On-Ramp, which would operate at an LOS D.

**Table 4**  
**FUTURE AVERAGE DAILY TRAFFIC ALONG STATE ROUTE 57**

Location/Description	ADT	Heavy Truck Percentage	Heavy Trucks <sup>1</sup>	Year 2030 Without Project LOS	Year 2030 With Project LOS
Orangethorpe Ave to Chapman Ave	303,912	7%	21,273	F	F
Chapman Ave to Nutwood Ave	295,862	7%	20,710	F	F
Nutwood Ave to Yorba Linda Blvd	287,812	7%	20,146	F	E
Yorba Linda Blvd to Imperial Hwy	284,588	7%	19,921	F	F
Imperial Hwy to Lambert Rd	291,039	7%	20,372	F	E
Source: RBF Consulting, <i>SR-57 Northbound Widening Traffic Impact Analysis</i> , August 21, 2006.					
Note:					
1. Truck ADTs were based on a seven percent truck value, which was provided by Caltrans District 12, May 2006.					
2. Improvements to LOS are highlighted in <b>bold</b> .					

**Table 5**  
**FUTURE ON- AND OFF-RAMP LOS**

Ramp	ADT	Truck Percent Values	Heavy Trucks <sup>1</sup>	Year 2030 Without Project LOS	Year 2030 With Project LOS
Orangethorpe Ave. Off-Ramp	8,244	2%	165	E	E
Orangethorpe Ave. On-Ramp	13,444	2%	269	D	D
Chapman Ave. Off-Ramp	12,001	2%	240	E	<b>B</b>
Nutwood Ave. Off-Ramp	5,819	1%	58	E	E
Nutwood Ave. On-Ramp	9,233	2%	185	E	E
Yorba Linda Blvd. Off-Ramp	14,489	2%	290	E	E
EB Yorba Linda Blvd. On-Ramp	15,349	2%	307	E	<b>D</b>
WB Yorba Linda Blvd. On-Ramp	15,349	2%	307	E	<b>D</b>
Imperial Hwy. Off-Ramp	15,627	5%	781	E	<b>A</b>
EB Imperial Hwy. On-Ramp	23,778	5%	1,188	E	<b>D</b>
WB Imperial Hwy. On-Ramp	23,778	5%	1,188	E	<b>D</b>
Lambert Rd. Off-Ramp	11,697	5%	585	E	<b>B</b>
Source: RBF Consulting, <i>SR-57 Northbound Widening Traffic Impact Analysis</i> , August 21, 2006.					
Note:					
1. Truck ADTs were based on a seven percent truck value, which was provided by Caltrans District 12, May 2006.					
2. Improvements to LOS are highlighted in <b>bold</b> .					

The project proposes to increase the number of lanes and harmonize traffic flows to maximize capacity without acquiring significant amounts of right of way. Implementation of the proposed project would not alter the localized traffic for Year 2030. Additionally, traffic volumes are forecast to improve under the horizon year (2030) scenario. The purpose of the proposed SR-57 Northbound Widening Project, from the Orangethorpe Avenue exit ramp to the Lambert Road entrance ramp, is to improve both existing and future mobility, reduce congestion, improve mainline weaving and merging, and diverge movements without significant acquisitions of right of way.

As shown in Table 5, the proposed project would improve the LOS along the mainline SR-57 between Nutwood Avenue and Yorba Linda Boulevard and between Imperial Highway and Lambert Road from an LOS F to an E. The proposed project is also anticipated to improve the traffic along the on- and off-ramps. As shown in Table 4, seven of the on- and off-ramps would improve from an LOS E to a D or better. The Imperial Highway off-ramp would improve from an LOS E to an LOS A.

Since the proposed project would result in an improvement in LOS, it is anticipated that it would not result in a PM<sub>2.5</sub> hot-spot. Implementation would help reduce LOS, thereby, improving the air quality levels along SR-57. Furthermore, the proposed project is not a trip-generating project that would cause an increase in vehicle miles traveled (VMT). The project would add one regular through lane, and not an HOV lane. As shown in Tables 4 and 5, the project would not increase ADTs or alter the heavy-duty truck percentages along the roadways. The proposed project is located within an area composed of primarily commercial, residential, recreational, institutional land uses. This segment of SR-57 does not serve as the primary transit route for any ports, rail yards, or other significant sources of particulate matter.

## **4.2 PM<sub>2.5</sub> TRENDS**

### **4.2.1 South Coast Air Quality Management Plan (AQMP)**

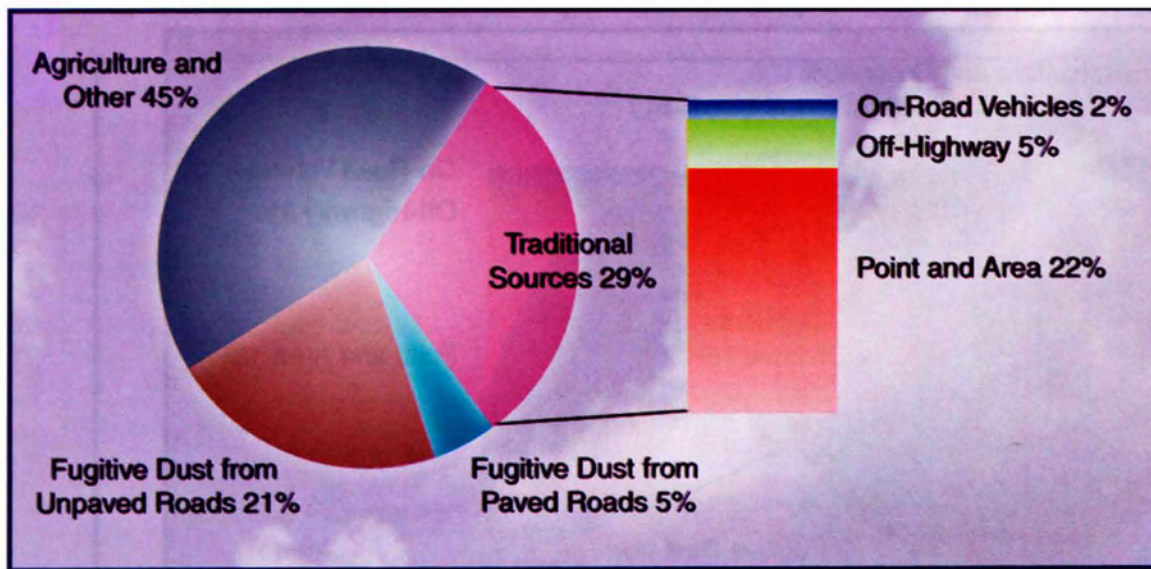
The South Coast Air Quality Management District (SCAQMD) has prepared multiple Air Quality Management Plans (AQMPs) to comply with state and federal planning requirements to reduce pollutant emissions and improve air quality. Revisions to the AQMP are conducted every three years. The most recent AQMP was adopted in August 1, 2003, but will soon be replaced by the 2007 AQMP. The SCAQMD is currently developing the plans in consultation with their Advisory Group and Scientific technical and modeling peer review group.<sup>1</sup> The 2003 AQMP incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2003 AQMP also includes modeling that estimates future air quality levels within the SCAB. Based on the modeling conducted in the 2003 AQMP, particulate matter emissions and other criteria pollutants have decreased significantly with implementation of new air quality standards and more stringent rules and regulations. According to the AQMP, comparisons with recent year projections show that the air quality is improving at a greater rate than was projected within the models.

In order to predict the future levels, it is important to understand the components associated with PM<sub>2.5</sub>. PM<sub>2.5</sub> consists of Sulfate (SO<sub>4</sub>), Nitrates (NO<sub>3</sub>), Ammonium Nitrate (NH<sub>4</sub>), Organic Compounds (OC), and Elemental Carbon (EC); refer to Exhibit 4 (Significant Components of PM<sub>2.5</sub> in the SCAB in Year 2006). As shown in Exhibit 4, the dominant compound of PM<sub>2.5</sub> is NH<sub>4</sub>. It is evident that significant reductions in ammonium nitrate would be needed to attain the PM<sub>2.5</sub> standards. Appreciable reductions would also be needed for organic compounds and elemental carbon associated with VOC emissions and soot, from diesel exhaust.

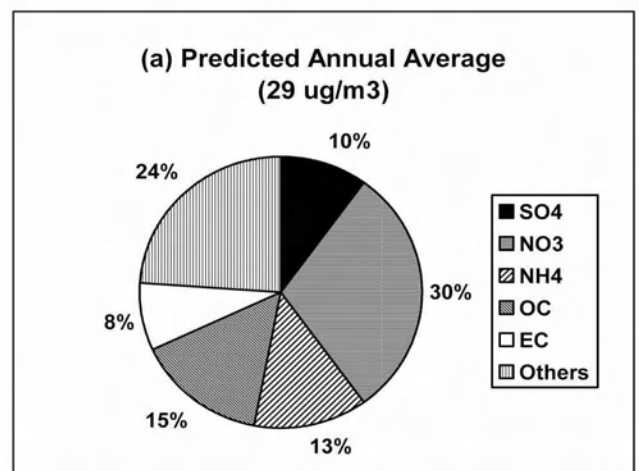
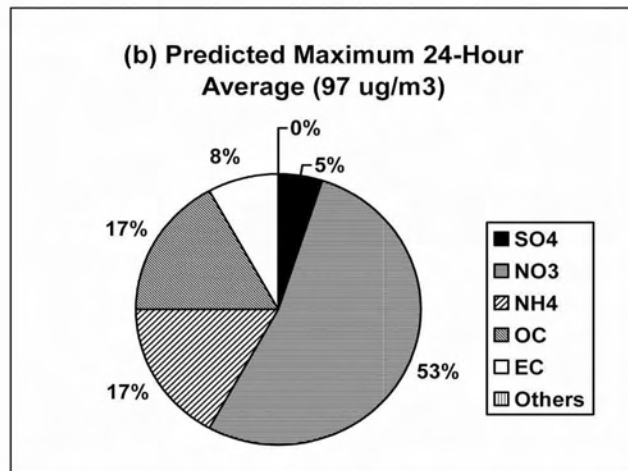
Table 6 (2003 AQMP Observed and Predicted PM<sub>2.5</sub> Levels), is taken from Chapter 10 (Looking Beyond Current Requirements) of the SCAQMD 2003 AQMP. Table 6 includes a comparison of the monitored 2001 PM<sub>2.5</sub> levels to the predicted modeled PM<sub>2.5</sub> levels from 2006 and 2010. As illustrated in Table 6, the data illustrates a trend of PM<sub>2.5</sub> emissions decreasing from the 2001 monitored sample to the predicted 2010 value. The data illustrated in Table 1 (Local PM<sub>2.5</sub> levels) supports this conclusion as the recorded PM<sub>2.5</sub> levels at the nearest monitoring station between year 2001-2005 for both the 24-hour measurement and average annual values have decreased from 115.5 µg/m<sup>3</sup> in 2003 to 54.7 µg/m<sup>3</sup> in 2005 for the 24-hour measurement. For the annual measurement, PM<sub>2.5</sub> levels have decreased from 18.6 µg/m<sup>3</sup> in 2002 to 16.0 µg/m<sup>3</sup> in 2005.

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<sup>1</sup> For further information, refer to <http://www.aqmd.gov/aqmp/07aqmp/07AQMP.html>



Source: U.S. Department of Transportation, Transportation Air Quality Selected Facts and Figures, January 2006.



Source: SCAQMD, 2004 Air Quality Management Plan, August 2003.

SR-57 NORTHBOUND WIDENING PROJECT • PM<sub>2.5</sub> QUALITATIVE ANALYSIS

## Significant Components of PM<sub>2.5</sub> in the SCAB in Year 2006

**Table 6**  
**2003 AQMP OBSERVED AND PREDICTED PM<sub>2.5</sub> LEVELS**

	Standard (µg/m <sup>3</sup> )	2001		2006		2010	
		Observed Max Value (µg/m <sup>3</sup> )	Percent above standard	Predicted Max Value (µg/m <sup>3</sup> )	Percent above standard	Predicted Max Value (µg/m <sup>3</sup> )	Percent above standard
PM <sub>2.5</sub> (24-hour)	65	98	51	97	49	68	5
PM <sub>2.5</sub> (Annual)	15	31	107	29	95	27	80
Notes:							
1. Year 2010 accounts for the 2003 AQMP Control Strategies.							
Source: South Coast Air Quality Management District, <i>2003 AQMP</i> , Chapter 10, Table 10-2, 2003.							

#### 4.2.2 Regional Transportation Plan (RTP) and Regional Transportation Improvement Programs (RTIP) Projections

The Southern California Association of Governments (SCAG), the Metropolitan Planning Organization (MPO) of Southern California is mandated to comply with all applicable federal and state transportation and air quality regulations. The new federal conformity regulation for PM<sub>2.5</sub> required SCAG to receive approval from the U.S. Department of Transportation (DOT) for the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program's (RTIP) PM<sub>2.5</sub> conformity determination by April 5, 2006. If the DOT does not approve SCAG's determination by April 5, 2006, then the region's conformity would lapse.

On February 2, 2006, the SCAG adopted Resolution 06-471-2 to approve the *Fine Particle PM<sub>2.5</sub> Conformity Finding* for the 2004 Regional Transportation Plan (RTP) and 2004 Regional Transportation Improvement Program (RTIP). In order to demonstrate the RTP and RTIP conformity to the new PM<sub>2.5</sub> standard an interim emissions test was performed. The interim emissions test for PM<sub>2.5</sub> required SCAG to run the regional transportation model and the state emissions model (Burden/EMFAC2002) for the year 2002 and for future milestone years, including 2010, 2020, and 2030. The interim emissions test compares the base line year of 2002 to the future year (2010, 2020, and 2030) emissions as a result of implementation of the RTP and RTIP. In the *Fine Particle PM<sub>2.5</sub> Conformity Finding*, SCAG demonstrated that implementing the 2004 RTP and the 2004 RTIP would not increase emissions for PM<sub>2.5</sub> in future years above the base line year.

Table 7 (24-hour PM<sub>2.5</sub> Baseline and RTP/RTIP Emissions Comparison) and Table 8 (Annual PM<sub>2.5</sub> Baseline and RTP/RTIP Emissions Comparison) provide the results of the emissions modeling conducted in SCAG's *Fine Particulate (PM<sub>2.5</sub>) Conformity Finding*. The predicted emissions associated with the RTP/RTIP would be based on the modeling conducted in the *Fine Particulate (PM<sub>2.5</sub>) Conformity Finding* study. The predicted emissions associated with the RTP and RTIP would be less than the baseline year 2002 concentrations of 13.27 tons/day. The emissions for future years were predicted to be 12.49 tons/day for year 2010, 13.27 tons/day for year 2020, and 12.72 tons/day for year 2030. For the annual emissions the baseline year resulted in 4,844 tons/day. The RTP/RTIP emissions were modeled to be 4,559 tons/day for year 2010, 4,402 for year 2020, and 4643 for year 2030, which are all less than the anticipated baseline year emissions.

**Table 7**  
**24-HOUR PM<sub>2.5</sub> BASELINE AND RTP/RTIP EMISSIONS COMPARISON**

Pollutant		2010 (tons/day)	2020 (tons/day)	2030 (tons/day)
PM <sub>2.5</sub>	Base year emissions	13.27	13.27	13.27
	2004 RTP/RTIP	12.49	12.06	12.72
NO <sub>x</sub>	Base year emissions	715.34	715.34	715.374
	2004 RTP/RTIP	417.99	192.74	125.75
Source: Southern California Association of Governments (SCAG), <i>Fine Particulate (PM<sub>2.5</sub>) Conformity Finding</i> , February 2, 2006.				
Note: Regional emissions generated using EMFAC 2002. To pass, RTP/RTIP emissions must be equal or less than base year emissions.				

**Table 8**  
**ANNUAL PM<sub>2.5</sub> BASELINE AND RTP/RTIP EMISSIONS COMPARISON**

Pollutant		2010 (tons/day)	2020 (tons/day)	2030 (tons/day)
PM <sub>2.5</sub>	Base year emissions	4,844	4,844	4,844
	2004 RTP/RTIP	4,559	4,402	4,643
NO <sub>x</sub>	Base year emissions	261,099	261,099	261,099
	2004 RTP/RTIP	152,565	70,351	45,898
Source: Southern California Association of Governments (SCAG), <i>Fine Particulate (PM<sub>2.5</sub>) Conformity Finding</i> , February 2, 2006.				
Note: Regional emissions generated using EMFAC 2002. To pass, RTP/RTIP emissions must be equal or less than base year emissions.				

The project is included in the RTP (RTP ID 2MO1117) and RTIP (RTIP ID ORA120332), therefore, the project has been considered within the regional emissions analysis presented above. On a regional basis, the proposed project would not result in significant PM<sub>2.5</sub> impacts. In addition to the baseline comparisons illustrated in Tables 7 and 8, the *Fine Particulate (PM<sub>2.5</sub>) Conformity Finding* conducted by SCAG provides a breakdown of regional emissions for the SCAB for years 2002, 2010, 2020, and 2030.

As illustrated on Table 9 (SCAB PM<sub>2.5</sub> – 24 Hour Emissions) and Table 10 (SCAB PM<sub>2.5</sub> – Annual Emissions), future PM<sub>2.5</sub> emissions associated with exhaust tire wear and brake emissions are anticipated to be less than the baseline year. The reduction is anticipated to range from 9 percent to 4 percent.

**Table 9**  
**SCAB PM<sub>2.5</sub> – 24-HOUR EMISSIONS**

Pollutant	2002 (grams/mile)	2010 (grams/mile)	2020 (grams/mile)	2030 (grams/mile)
2004 RTP/RTIP	NA	12.49	12.07	12.71
Exhaust	10.48	9.49	8.83	9.20
Tire Wear	0.83	0.9	0.98	1.08
Brake	1.97	2.1	2.25	2.44
Total PM <sub>2.5</sub> Exhaust	13.27	12.49	12.06	12.72
Baseyear Emissions	13.27	13.27	13.27	13.27
Difference (Plan – baseyear)	N/A	-0.78	-1.21	-0.55
Source: Southern California Association of Governments (SCAG), <i>Fine Particulate (PM<sub>2.5</sub>) Conformity Finding</i> , February 2, 2006.				
Note:				
<ul style="list-style-type: none"> <li>▪ Regional emissions generated using EMFAC 2002. To pass, RTP/RTIP emissions must be equal or less than baseyear emissions.</li> <li>▪ NA = Not Applicable</li> </ul>				

**Table 10**  
**SCAB PM<sub>2.5</sub> – ANNUAL EMISSIONS**

Pollutant	2002 (grams/mile)	2010 (grams/mile)	2020 (grams/mile)	2030 (grams/mile)
2004 RTP/RTIP	NA	4,559	4,406	4,639
Exhaust	3,825	3,464	3,223	3,358
Tire Wear	303	329	358	394
Brake	719	767	821	891
Total PM <sub>2.5</sub> Exhaust	4,844	4,559	4,402	4,643
Baseyear Emissions	4,844	4,844	4,844	4,844
Difference (Plan – baseyear)	NA	-285	-442	-201
Source: Southern California Association of Governments (SCAG), <i>Fine Particulate (PM<sub>2.5</sub>) Conformity Finding</i> , February 2, 2006.				
Note: <ul style="list-style-type: none"> <li>▪ Regional emissions generated using EMFAC 2002. To pass, RTP/RTIP emissions must be equal or less than baseyear emissions.</li> <li>▪ NA = Not Applicable</li> </ul>				



## 5.0 CONCLUSION

This project is needed to maintain acceptable level of service (LOS), and to implement part of the improvements recommended in the Transportation Concept Report (formerly Route Concept Report) for State Route 57 Freeway, which was approved in 1999. As noted above under "Purpose and Need", by Year 2030 the two-way AADT along the mainline of SR-57 ranges from 284,588 (Yorba Linda Boulevard to Imperial Highway) to 314,339 (south of Orangethorpe Avenue). Heavy trucks along SR-57 account for 7 percent of the overall volume (note that recreational vehicles are also accounted for in this classification). Heavy truck trips would range from 19,921 to 22,003 trips. Without any improvements to the freeway, a failing level of service (LOS F) is expected along the SR-57 mainline and LOS E for the on- and off-ramps. The proposed improvements will improve local circulation and access through this vital corridor.

Although the SR-57 mainline experiences two-way volumes in excess of 200,000 vehicles per day (vpd), the total volume of heavy truck and diesel traffic is expected to be seven (7) percent of the total ADT under existing and forecast Year 2030 conditions. Note that this segment of SR-57 does not serve any ports, rail yards or other significant sources of particulate matter. Based upon the information provided above, the project is not expected to introduce significant amounts of diesel truck traffic. Furthermore, based on the information provided by SCAG and the SCAQMD, future PM<sub>2.5</sub> levels within the SCAB are anticipated to further decrease over time.

As modeled within the 2003 AQMP, PM<sub>2.5</sub> levels within the SCAB are predicted to significantly decrease over time. The 2003 AQMP included modeling data that showed a decreasing trend in overall emissions from years 2001 through 2006. The data measured at the Anaheim monitoring station further confirms the findings of the 2003 AQMP. Data at the Anaheim monitoring showed a decrease in PM<sub>2.5</sub> emissions from Year 2001 to 2005, which is consistent with the modeling for the 2003 AQMP.

Furthermore, the proposed project has been programmed in the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) and is intended to meet the traffic needs in the area based on local land use plans. Additionally, as indicated in the *Fine Particulate (PM<sub>2.5</sub>) Conformity Finding* provided by SCAG, the RTP and RTIP conform to the air quality goals established by the State Implementation Plan (SIP). The 2004 RTP and RTIP would 1) not create new violations of the federal air quality standards, 2) not increase the frequency or severity of existing violations of the standards, and 3) not delay attainment of the standards. The proposed project was included within the RTP and RTIP and therefore would also be consistent with state and federal conformity for PM<sub>2.5</sub>.

Based on the analysis and monitoring data for the proposed project, it is determined that the SR-57 project meets all the project level conformity requirements, and that the project would not cause or contribute to a new violation of the PM<sub>2.5</sub> NAAQS, or increase the frequency or severity of a violation. Therefore, the project meets the conformity hot-spot requirements in 40 CFR 93.116 and 93.123 for PM<sub>2.5</sub>.

## 6.0 REFERENCES

### 6.1 List of Preparers

#### RBF CONSULTING

14725 Alton Parkway  
Irvine, California 95618  
949/472-3505

Eddie Torres, Environmental Analyst  
Maria Cadiz, Environmental Analyst

### 6.2 Documents

1. Environmental Protection Agency, *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas*, March 2006.
2. RBF Consulting, *Air Quality Assessment for SR-57 Northbound Widening Improvements*, April 7, 2006.
3. RBF Consulting, *SR-57 Northbound Widening Traffic Impact Analysis*, August 21, 2006.
4. South Coast Air Quality Management Agency, *2003 Air Quality Management Plan, South Coast Air Basin*, August 1, 2003.
5. Southern California Association of Governments, *Final Particle PM<sub>2.5</sub> Conformity Finding*, February 6, 2006.

### 6.3 WEB SITES/PROGRAMS

California Air Resources Board, [www.arb.ca.gov](http://www.arb.ca.gov).

South Coast Air Quality Management District, [www.aqmd.gov](http://www.aqmd.gov).

Southern California Association of Government, Transportation Conformity Working Group (TCWG), <http://www.scag.ca.gov/tcwg/>.

## **Appendix A - TCWG Interagency Consultation Form**

## PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

<b>Project Description</b> <i>from TIP, RTP, and/or project documents</i>		<b>MPO ID#:</b> ORA120332	
<p>The Orange County Transportation Authority (OCTA) proposes to construct improvements to widen northbound State Route 57 (the Orange Freeway) from 0.3 km (0.2 mi) south of Orangethorpe Avenue in the City of Placentia to 0.2 km (0.1 mi) north of Lambert Road in the City of Brea. This project has a length of 7.6 km (4.7 mi), and passes through the Cities of Placentia, Fullerton and Brea, in Orange County, California. Refer to Attachment A (Additional Information) for an expanded summary.</p>			
<b>Type of project</b> <i>see list below</i> Change to existing state highway			
<b>County:</b>  Orange	<b>Narrative Location/Route &amp; Postmiles:</b> Between 0.3 km (0.2 mi) South of Orangethorpe Avenue to 0.2 km (0.1 mi) North of Lambert Road 12-ORA-57 KP 26.4 / 34.0 (PM 16.4 / 21.1)  <b>Caltrans Projects – EA#:</b> 0F0300		
<b>Lead Agency:</b> Orange County Transportation Authority			
<b>Contact Person</b> Arshad Rashedi	<b>Phone#</b> 714.560.5874	<b>Fax#</b> 714.560.5794	<b>Email</b> arashedi@octa.net
<b>Decision Desired</b> <i>Check appropriate box below</i>			
<b>PM2.5</b>	<input type="checkbox"/>	<b>MAYBE Project of Air Quality Concern</b>	<input checked="" type="checkbox"/> <b>X</b>
<b>PM10</b>	<input type="checkbox"/>	<b>MAYBE Project of Air Quality Concern</b>	<input checked="" type="checkbox"/> <b>X</b>
<b>Federal Action for which PM Analysis is Needed</b> <i>Check appropriate box and describe in Comments below</i>			
<input type="checkbox"/> <b>CE</b>	<input checked="" type="checkbox"/> <b>X</b>	<input type="checkbox"/> <b>EA or Draft EIS</b>	<input type="checkbox"/> <b>FONSI or Final EIS</b>
<input type="checkbox"/> <b>PS&amp;E or Construction</b>		<input type="checkbox"/> <b>Other</b>	
<b>Scheduled Date of Federal Action:</b> Aug 2007			
<b>Current Programming Dates</b> <i>as appropriate</i>			
	<b>PE/Environmental</b>	<b>ENG</b>	<b>ROW</b>
<b>Start</b>	Aug 2005	Nov 2007	Jun 2008
<b>End</b>	Aug 2007	Dec 2008	Dec 2010
<b>Project Purpose and Need (Summary):</b> <i>Attach additional sheets as necessary</i>  <p>The purpose of the proposed SR-57 Northbound Widening Project, from the Orangethorpe Avenue exit ramp to the Lambert Road entrance ramp, is to improve both existing and future mobility, reduce congestion, improve mainline weaving, merge and diverge movements without substantial acquisition of right of way. Without any improvements to the freeway, a failing level of service (LOS F) is expected throughout the project area. Refer to Attachment A (Additional Information) for an expanded summary.</p>			
<b>Surrounding Land Use/Traffic Generators</b>  <p>SR-57 is one of the principal freeways connecting Orange County with the eastern part of Los Angeles County and the adjacent portion of San Bernardino County and directly serves a number of major traffic generators including California State University at Fullerton, the Arrowhead "Pond" of Anaheim, Edison International Field of Anaheim baseball stadium, the Brea Mall Shopping Center and Craig Regional Park. The part of State Route 57 Freeway which continues north into Los Angeles County directly serves California State Polytechnic University at Pomona, the Lanterman State Developmental Center and Frank G. Bonelli Regional County Park.</p>			
<b>LOS, AADT, % trucks, truck AADT of proposed facility (opening year)</b>  <p>Refer to Exhibit 1 (SR-57 Existing Average Daily Traffic [ADT] Volumes) within Attachment B (ADT Exhibits). As noted within Exhibit 1, the two-way AADT along the mainline of SR-57 ranges from 202,500 (north of Lambert Road) to 283,500 (south of Orangethorpe Avenue). Heavy trucks along SR-57 account for 7 percent of the overall volume (note that recreational vehicles are also accounted for in this classification). Additionally, all of the study freeway segments are forecast to operate at LOS F for forecast year 2030 without Project conditions and two segments are improved with Project conditions. Refer to Attachment A (Additional Information) for a detailed summary of the ADT, truck percentage and LOS.</p>			

**LOS, AADT, % trucks, truck AADT of proposed facility (RTP horizon year)**

Refer to Exhibit 2 (SR-57 Forecast Year 2030 Average Daily Traffic [ADT] Volumes) within Attachment B (ADT Exhibits). As noted within Exhibit 2, the two-way AADT along the mainline of SR-57 ranges from 284,588 (Yorba Linda Boulevard to Imperial Highway) to 303,912 (south of Orangethorpe Avenue). Heavy trucks along SR-57 account for 7 percent of the overall volume (note that recreational vehicles are also accounted for in this classification). Additionally, the LOS for two segments is improved with Project conditions. Refer to Attachment A (Additional Information) for an a detailed summary of the ADT, truck percentage and LOS.

**If facility is interchange(s) or intersection(s), cross-street AADT, % trucks, truck AADT (opening year):** Not Applicable

**If facility is interchange(s) or intersection(s), cross-street AADT, % trucks, truck AADT (RTP horizon year):** Not Applicable

**Describe potential traffic redistribution effects of congestion relief**

Based upon the scope of the proposed improvements, localized traffic will not be redistributed. Additionally, traffic volumes are forecast to improve under the horizon year (2030) scenario. Refer to Attachment A (Additional Information) for an expanded summary.

**Comments/Explanation/Details**

*Attach additional sheets as necessary; include narrative reason why POAQC or Not POAQC decision is appropriate*

Conformity determinations require the analysis of direct and indirect emissions associated with the proposed project and compare them to the without project condition. If the total of direct and indirect emissions from the project reaches or exceeds regionally significant thresholds, the Lead Agency must perform a conformity determination to demonstrate the positive conformity of the federal action.

The proposed project would not conflict with an applicable plan, policy, or regulation of an agency with jurisdiction over the project. The proposed project is also consistent with Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) and is intended to meet the traffic needs in the area based on local land use plans. Additionally, this project is identified in the freeway chokepoint program and is part of the fast forward initiative being sponsored by the Orange County Transportation Authority (OCTA) for funding for design and construction. It is proposed as a "Category 4A" project, and is proposed to be paid for by Orange County Measure "M" funds and/or RTIP funds. This project is needed to maintain acceptable level of service (LOS), and to implement part of the improvements recommended in the Transportation Concept Report (formerly Route Concept Report) for State Route 57 Freeway, which was approved in 1999.

As noted above under "Purpose and Need", by Year 2030, daily traffic volumes within the project area range from more than 144,000 to 158,000 vehicles per day, with peak hour volumes ranging from 11,700 to nearly 13,600 vehicles in the mixed-flow lanes and 3,000 vehicles in the HOV lane. Without any improvements to the freeway, a failing level of service (LOS F) is expected throughout the project area. The proposed improvements will improve local circulation and access through this vital corridor. Although the SR-57 mainline experiences two-way volumes in excess of 200,000 vehicles per day (vpd), the total volume of heavy truck and diesel traffic is expected to seven (7) percent of the total ADT under existing and forecast Year 2030 conditions. Note that this segment of SR-57 does not serves any ports, rail yards or other significant sources of particulate matter.

Based upon the information provided above, the project is not expected to introduce significant amounts of diesel truck traffic and is not considered a project of significant concern per the definition contained within 40 CFR 93.123(b)(1). Thus, a less than significant impact with respect to PM<sub>2.5</sub> and PM<sub>10</sub> would occur.

**TYPE OF PROJECT:**

*New state highway; Change to existing state highway*

*New regionally significant street; Change to existing regionally significant street*

*New interchange; Reconfigure existing interchange*

*Intersection channelization*

*Intersection signalization*

*Roadway realignment*

*Bus, rail, or inter-modal facility/terminal/transfer point*

*Truck weight/inspection station*

*At or affects location identified in the SIP as a site of actual or possible violation of NAAQS*

**REFERENCE:**

**Criteria for Projects of Air Quality Concern (40 CFR 93.123(b)(1)) – PM<sub>10</sub> and PM<sub>2.5</sub> hot spots**

- (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;*
- (ii) Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;*
- (iii) New bus and rail terminals and transfer points than have a significant number of diesel vehicles congregating at a single location;*
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and*
- (v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM<sub>10</sub> or PM<sub>2.5</sub> applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.*

**Attachment A**  
**Additional Information**

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## ATTACHMENT A – ADDITIONAL INFORMATION

This Attachment is intended to supplement the information contained within the *PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation* form.

### PROJECT DESCRIPTION

The Orange County Transportation Authority (OCTA) proposes to construct improvements to widen northbound State Route 57 (the Orange Freeway) from 0.3 km (0.2 mi) south of Orangethorpe Avenue in the City of Placentia to 0.2 km (0.1 mi) north of Lambert Road in the City of Brea. This project has a length of 7.6 km (4.7 mi), and passes through the Cities of Placentia, Fullerton and Brea, in Orange County, California.

In general, the SR-57 Northbound Widening Improvements propose to add one northbound through lane from the Orangethorpe Avenue Exit Ramp to the Lambert Avenue Entrance Ramp. Details of the proposed improvements are as follows:

1. Orangethorpe Avenue Exit Ramp to Orangethorpe Avenue Entrance Ramp: The existing facility provides (1) HOV lane and (5) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (6) mixed-flow lanes.
2. Orangethorpe Avenue Entrance Ramp to Chapman Avenue Exit Ramp: The existing facility provides (1) HOV lane, (4) mixed-flow lanes, and (1) auxiliary lane. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes, (1) auxiliary lane and a two-lane exit ramp to Chapman Avenue.
3. Chapman Avenue Exit Ramp to Nutwood Avenue Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
4. Nutwood Avenue Entrance Ramp to Yorba Linda Boulevard Exit Ramp: The existing facility provides (1) HOV lane, (4) mixed-flow lanes and (1) auxiliary lane. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes and (1) auxiliary lane.
5. Yorba Linda Boulevard Exit Ramp to Yorba Linda Boulevard North Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
6. Yorba Linda Boulevard North Entrance Ramp to Rolling Hills Drive: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
7. Rolling Hills Drive to Imperial Highway Exit Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane, (1) auxiliary lane and the Imperial Hwy exit ramp will be reconfigured from a one-lane exit to a two-lane exit. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes, (1) auxiliary lane and a two-lane exit ramp to Imperial Hwy.
8. Imperial Highway Exit Ramp to Imperial Highway South Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.
9. Imperial Highway South Entrance Ramp to Imperial Highway North Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (2) mixed-flow lanes. The proposed facility will provide (1) HOV lane and (6) mixed-flow lanes.
10. Imperial Highway North Entrance Ramp to Lambert Road Exit Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow



lane and (1) auxiliary lane. The proposed facility will provide (1) HOV lane, (5) mixed-flow lanes and (1) auxiliary lane.

11. Lambert Road Exit Ramp to Lambert Road Entrance Ramp: The existing facility provides (1) HOV lane and (4) mixed-flow lanes. The Project will add (1) mixed-flow lane. The proposed facility will provide (1) HOV lane and (5) mixed-flow lanes.

Alternative 1 will generally provide the proposed improvements in accordance with Caltrans Highway Design Manual requirements. Alternative 2 differs from Alternative 1 principally in the following respects:

1. Maintains existing nonstandard median shoulder (generally 0.6 meter in width) north of Orangethorpe Avenue;
2. Maintains existing nonstandard 3.35 meter lane widths;

Both build alternatives require limited amounts of right of way acquisition. Alternative 1 requires approximately 515 m<sup>2</sup> of acquisition at a total of five locations. Alternative 2 requires approximately 24 m<sup>2</sup> of acquisition at one location.

## **PROJECT PURPOSE AND NEED**

The purpose of the proposed SR-57 Northbound Widening Project, from the Orangethorpe Avenue exit ramp to the Lambert Road entrance ramp, is to improve both existing and future mobility, reduce congestion, improve mainline weaving, merge and diverge movements without substantial acquisition of right of way. The environmental study boundary spans from the SR-91 interchange to north of Lambert Road where traffic generation reduces due to lower population density.

The proposed project is intended to achieve the following goals:

1. Maximize mainline mobility and throughput without acquisition of substantial right of way;
2. Facilitate regional circulation, flow of goods and services via SR-57;
3. Achieve a major component of the OCTA Chokepoint Program; and
4. Conform to state, regional, and local plans and policies.

Existing daily traffic volumes within the project area range from more than 101,000 to 142,000 vehicles per day, with peak hour volumes ranging from 8,300 to nearly 9,900 vehicles in the mixed-flow lanes and over 1,700 vehicles in the HOV lane. Under current traffic conditions, substantial congestion is experienced in the afternoon peak hour period.

By Year 2030, daily traffic volumes within the project area range from more than 144,000 to 158,000 vehicles per day, with peak hour volumes ranging from 11,700 to nearly 13,600 vehicles in the mixed-flow lanes and 3,000 vehicles in the HOV lane. The forecast northbound peak hour traffic volumes in the HOV lane in the Year 2030 is based on a requirement of at least two persons per vehicle. Without any improvements to the freeway, a failing level of service (LOS F) is expected throughout the project area.

This project is supported by OCTA and Caltrans District 12. It is identified in the freeway chokepoint program and is part of the fast forward initiative being sponsored by OCTA for funding for design and construction. It is proposed as a "Category 4A" project. It is anticipated that a Mitigated Negative Declaration/Finding of No Substantial Impact (MND/FONSI) would satisfy the environmental compliance for CEQA and NEPA. This project is tentatively proposed to be funded by Orange County Measure "M" funds and/or Regional Transportation

Improvement Program (RTIP) funds. The PA/ED phase of the project is scheduled for completion in May 2007. This project would serve to implement part of the improvements recommended in the Transportation Concept Report (formerly Route Concept Report for SR-57).

This is considered to be State-Authorized under current the FHWA/Caltrans Stewardship Agreement.

### **LOS, AADT, % TRUCKS, TRUCK AADT OF PROPOSED FACILITY**

**Table 1**  
**Truck Percentages**

#	Roadway Segment	Truck Percent Values
1	SR -57 Mainline	7%
2	Orangethorpe Avenue Off-Ramp	2%
3	Orangethorpe Avenue On-ramp	2%
4	Chapman Avenue Off-Ramp	2%
5	Nutwood Avenue Off-Ramp	1%
6	Nutwood Avenue On-Ramp	2%
7	Yorba Linda Boulevard Off-Ramp	2%
8	Eastbound Yorba Linda Boulevard On-Ramp	2%
9	Westbound Yorba Linda Boulevard On-Ramp	2%
10	Imperial Highway Off-Ramp	5%
11	Eastbound Imperial Highway On-Ramp	5%
12	Westbound Imperial Highway On-Ramp	5%
13	Lambert Road Off-Ramp	5%

Source: Steve Kinaly, Caltrans District 12, May 2006.

**Table 2**  
**Freeway Segment PM Peak Hour Level of Service**

Ramp	Existing Conditions		Year 2030 Without Project		Year 2030 With Project	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Orangethorpe Ave to Chapman Ave	35.8	E	OVRFL	F	OVRFL	F
Chapman Ave to Nutwood Ave	41.5	E	OVRFL	F	OVRFL	F
Nutwood Ave to Yorba Linda Blvd	31.4	D	OVRFL	F	38.1	E
Yorba Linda Blvd to Imperial Hwy	42.9	E	OVRFL	F	OVRFL	F
Imperial Hwy to Lambert Rd	41.0	E	OVRFL	F	36.5	E

Source: *Traffic Impact Analysis*, January 31, 2006.  
Note: pc/mi/ln = passenger cars per mile per lane; OVRFL= Density exceeds calculation of software program.

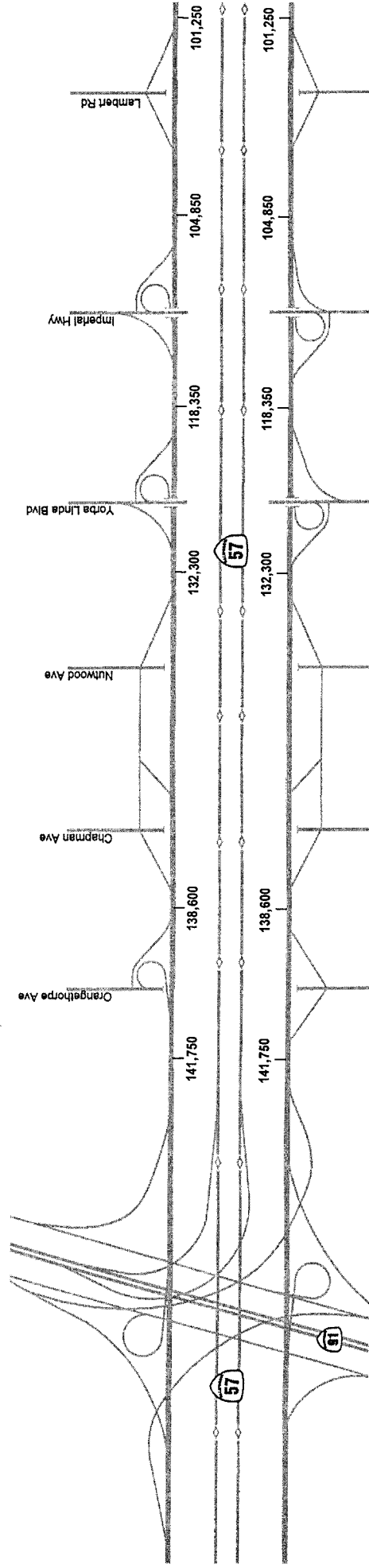
### **DESCRIBE POTENTIAL TRAFFIC REDISTRIBUTION EFFECTS OF CONGESTION RELIEF**

During construction, changes will be made in the position of lanes and the cross section of the northbound lanes of the freeway. All lanes, except the outermost mixed-flow lane, will be reduced to 3.35 meters in width. No reductions in the number of travel lanes, freeway closures, intersecting road closures, or rail closures are anticipated. Temporary reductions or closures may occur at the (1) beginning of construction, when barriers are being moved into position; (2) during re-striping, when falsework is being installed or removed; or (3) at the end, when the freeway is being restored to its completed condition. These closures would be limited to

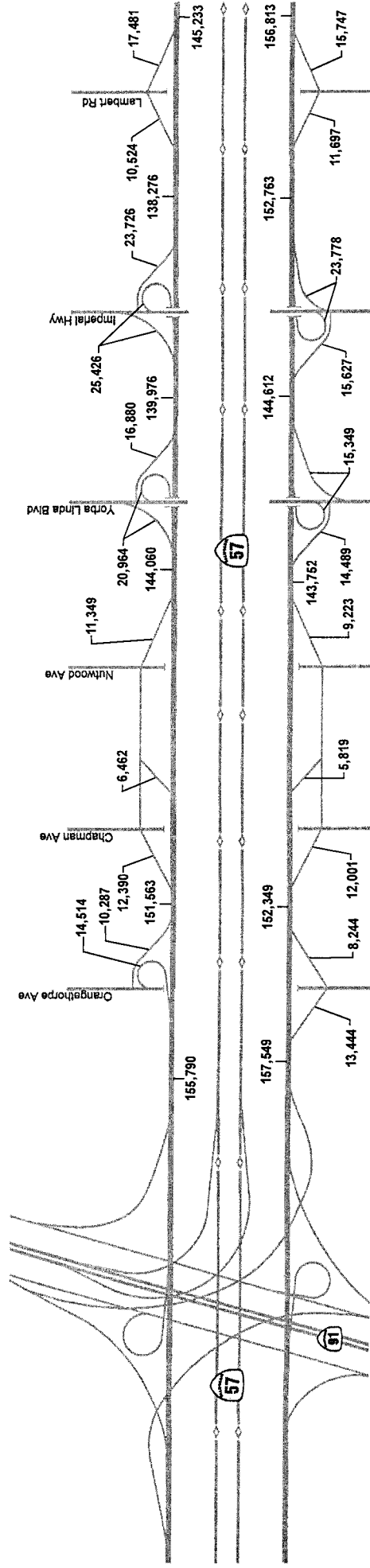
between 10:00 p.m. and 5:00 a.m., and adequate notification will be required. No detours are planned for this project, with the exception of temporary closures necessary for re-striping, placement of falsework, etc

Once operational, there are not any anticipated long-term shifts in the planned land use types. The proposed project will improve vehicular circulation within portions of the cities of Fullerton, Placentia, and Brea that are densely populated. The proposed project would not induce development in the project area. Additionally, projects are proposed to the north and south of the proposed project that would widen northbound SR-57. Thus, this project is compatible with potential future improvements along SR-57. Specifically, a Project Study Report (PSR) was prepared by Caltrans, and approved in September 2001, to add a minimum of one northbound climbing lane (a fifth and possibly a sixth mixed-flow climbing lane) from Lambert Road approximately 1 km (0.62 mi) north of the Orange County/Los Angeles County line.

**Attachment B**  
**ADT Exhibits**



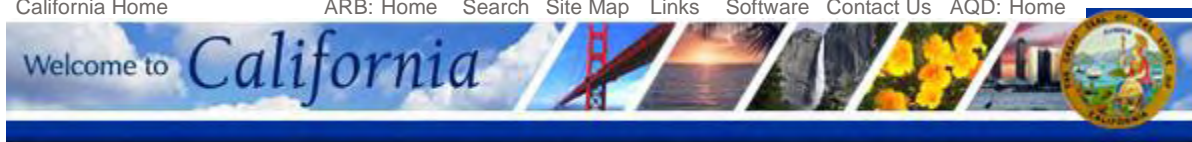
XXX - Existing Average Daily Traffic Volume  
 Source : Orange County Transportation Authority.



XXX - Forecast Year 2030 Average Daily Traffic Volume

Source : Orange County Transportation Authority.

## **Appendix B - Air Quality Monitoring Sheets**

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**Air Resources Board**
**iADAM**

## Highest 4 Daily PM2.5 Measurements

**Anaheim-Pampas Lane**
[FAQs](#)

Year:	2000	2001	2002
Date	Measurement	Date	Measurement
<b>National:</b>			
First High:	*	Oct 25	<b>70.8</b>
Second High:	*	Oct 26	63.3
Third High:	*	Nov 4	60.2
Fourth High:	*	Nov 7	60.2
<b>California:</b>			
First High:	*	Oct 25	70.8
Second High:	*	Oct 26	63.3
Third High:	*	Nov 4	60.2
Fourth High:	*	Nov 7	60.2
# Days Above Nat'l Standard:	*		<b>1</b>
3-Year Average 98th Percentile:	*		*
1-Year 98th Percentile:	*		48.1
National 3-Year Average:	*		*
National Annual Average:	*		<b>18.6</b>
State 3-Yr Maximum Average:	*		<b>19</b>
State Annual Average:	*		<b>18.6</b>
<a href="#">Go Backward One Year</a>		<a href="#">New Top 4 Summary</a>	
		<a href="#">Go Forward One Year</a>	

**Notes:** All concentrations are expressed in micrograms per cubic meter.

State exceedances are shown in **yellow**. National exceedances are shown in **orange**.

An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods.

State and national statistics may therefore be based on different samplers.

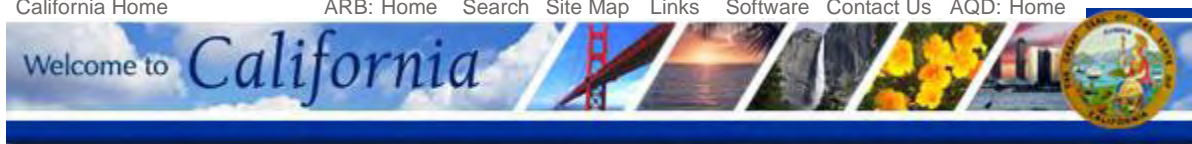
State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

3-Year statistics represent the listed year and the 2 years before the listed year.

\* There was insufficient (or no) data available to determine the value.

Switch:	Hourly Ozone	8-Hour Ozone	PM10	Carbon Monoxide	Nitrogen Dioxide	Sulfur Dioxide	Hydrogen Sulfide
Go to:	<a href="#">Data Statistics Home Page</a>			<a href="#">Top 4 Summaries Start Page</a>			



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Anaheim-Pampas Lane

[FAQs](#)

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
<b>National:</b>						
First High:	Oct 26	115.5	Oct 7	58.9	Jan 22	54.7
Second High:	Oct 27	70.0	Mar 20	52.9	Oct 21	49.1
Third High:	Jan 23	69.5	Mar 19	51.9	Jul 4	44.3
Fourth High:	Oct 29	54.4	Mar 22	49.7	Dec 13	43.9
<b>California:</b>						
First High:	Oct 26	115.5	Oct 7	58.9	Jan 22	54.7
Second High:	Oct 27	70.0	Mar 20	52.9	Oct 21	49.1
Third High:	Jan 23	69.5	Mar 19	51.9	Jul 4	44.3
Fourth High:	Oct 29	54.4	Mar 22	49.7	Dec 13	43.9
# Days Above Nat'l Standard:		3		0		0
3-Year Average 98th Percentile:		*		49		47
1-Year 98th Percentile:		51.8		48.2		41.8
National 3-Year Average:		*		17		16
National Annual Average:		17.3		16.8		14.7
State 3-Yr Maximum Average:		19		19		*
State Annual Average:		*		*		*
		<a href="#">Go Backward One Year</a>	<a href="#">New Top 4 Summary</a>		<a href="#">Go Forward One Year</a>	

**Notes:** All concentrations are expressed in micrograms per cubic meter.State exceedances are shown in **yellow**. National exceedances are shown in **orange**.

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State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods.

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State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

3-Year statistics represent the listed year and the 2 years before the listed year.

\* There was insufficient (or no) data available to determine the value.

Switch:	Hourly Ozone	8-Hour Ozone	PM10	Carbon Monoxide	Nitrogen Dioxide	Sulfur Dioxide	Hydrogen Sulfide
Go to:	<a href="#">Data Statistics Home Page</a>			<a href="#">Top 4 Summaries Start Page</a>			